

MARMORA

**water
treatment
plant**

**1
9
6
7**

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca



ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET, TORONTO 5

OFFICE OF THE GENERAL MANAGER

Members of the Marmora Local Advisory Committee,
Village of Marmora.

Gentlemen:

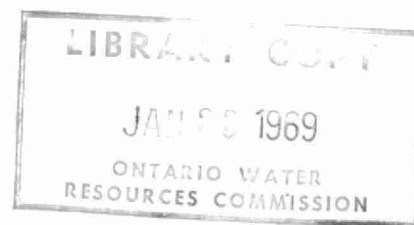
We are happy to present you with the 1967 Operating Summary for the
Marmora Water Treatment Plant, OWRC Project No. 6-0025-58.

Your co-operation with our staff throughout the year has been appreciated.

Yours very truly,

A handwritten signature in dark ink, appearing to read "D. S. Caverly", is written over the typed name.

D. S. Caverly,
General Manager.





ONTARIO WATER RESOURCES COMMISSION

801 BAY STREET
TORONTO 5

J. A. VANCE, LL.D.
CHAIRMAN

J. H. H. ROOT, M.P.P.
VICE-CHAIRMAN

D. S. CAVERLY
GENERAL MANAGER

W. S. MACDONNELL
COMMISSION SECRETARY

General Manager,
Ontario Water Resources Commission.

Dear Sir:

I am pleased to submit to you the 1967 Operating Summary for the Marmora Water Treatment Plant, OWRC Project No. 6-0025-58.

The summary reviews progress during the year, outlines operating problems encountered and summarizes in graphs, charts and tables all significant flow and cost data.

Yours very truly,

A handwritten signature in cursive script, reading "D. A. McTavish".

D. A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

FOREWORD

● This operating summary has been prepared in order to acquaint readers with the management of the project during 1967. The efficiency of the plant's operation is reflected in a general review. Significant financial details are recorded, and technical performance is illustrated by graphs and charts.

The summary should answer two salient questions. Are the project's facilities adequate at this time? And can the project meet future requirements?

The Regional Operations Engineer is primarily responsible for the preparation of the report, and will be pleased to answer any questions regarding it.

Most of the material for the graphs and charts was compiled by the statistics section of the Division of Plant Operations, with the final versions of the graphs being drawn by the draughting section of the Division of Sanitary Engineering. Cost data were provided by the Division of Finance.

It will be evident from the report that all of these groups co-operated with substantial success.

CONTENTS

Title Page	1
1967 Review.	3
Project Costs	4
Operating Costs	5
Process Data	7
Graphs:	
Probability of Flows	8
Total Monthly Flows	9
Activated Carbon and Average Colour	10
Lbs. Diatomaceous Earth	11
Chlorination	12

MARMORA

water treatment plant

operated for

THE VILLAGE OF MARMORA

by the

ONTARIO WATER RESOURCES COMMISSION

CHAIRMAN: Dr. James A. Vance

VICE-CHAIRMAN: J. H. H. Root, M. P. P.

COMMISSIONERS

W. D. Conklin, Q. C. H. E. Brown
D. A. Moodie L. E. Venchiarutti

GENERAL MANAGER: D. S. Caverly

ASSISTANT GENERAL MANAGERS

L. E. Owers K. H. Sharpe
F. A. Voegel A. K. Watt

COMMISSION SECRETARY

W. S. MacDonnell

DIVISION OF PLANT OPERATIONS

DIRECTOR: D. A. McTavish

Assistant Director: C. W. Perry
Regional Supervisor: P. J. Osmond
Operations Engineer: J. N. Dick

801 Bay Street Toronto 5

'67 REVIEW

The Marmora Water Treatment Plant treated 33.724 mg of water in 1967. This represents an 8 percent increase in volume over 1966.

OPERATING COSTS

The operating expense for 1967 incurred by the OWRC was \$1151.85. This is a slight decrease from the previous year's operating cost, which was \$1236.

The Corporation of the Village of Marmora incurred the following operating costs:

Administration	\$ 500.00
Printing and Stationery	21.46
Postage	60.00
Operator's Salary	2173.23
Operation	616.98
Maintenance	<u>17.93</u>
	<u>\$3489.60</u>

The total operating costs for the Marmora Water System in 1967 were \$4641.48.

REPAIRS and MAINTENANCE

All repairs experienced at the plant in 1967 were of a minor nature. The operation and maintenance of the plant has been very satisfactory.

PROJECT COSTS

NET CAPITAL COST (Estimated)	\$212,977.01
DEDUCT - Payments from Municipalities	<u>425.00</u>
Long Term Debt to OWRC	<u>\$212,552.01</u>
Debt Retirement Balance at Cedit (Sinking Fund) December 31, 1967	\$ <u>21,201.90</u>
Net Operating	\$ 1,156.85
Debt Retirement	4,770.00
Reserve	1,164.10
Interest Charged	<u>11,958.35</u>
TOTAL	\$ <u>19,049.30</u>

RESERVE ACCOUNT

Balance at January 1, 1967	\$ 6,442.39
Deposited by Municipality	1,164.10
Interest Earned	<u>391.08</u>
	\$ 7,997.57
Less Expenditures	<u>-</u>
Balance at December 31, 1967	\$ <u>7,997.57</u>

MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	CHEMICAL	GENERAL SUPPLIES	EQUIPMENT	REPAIRS & MAINTENANCE	SUNDRY
JAN						
FEB	1.50					1.50
MARCH	318.20	292.70			14.21	11.29
APR	9.00	7.50				1.50
MAY	24.60	23.10				1.50
JUNE	35.09					35.09
JULY	286.84	276.50				10.34
AUG	3.00					3.00
SEPT	9.41			3.65	4.26	1.50
OCT	321.75	320.25				1.50
NOV	118.46					118.46
DEC	24.00		22.50			1.50
TOTAL	\$ 1151.85	920.05	22.50	3.65	18.47	187.18

YEARLY OPERATING COSTS

YEAR	M.G. TREATED	TOTAL COST	COST PER THOUSAND GALLONS
1962	11,992	\$ 824	\$ 0.07
1963	16,607	937	0.06
1964	18,690	515	0.02
1965	23,713	923	0.04
1966	31,082	1236	0.04
1967	33,724	1152	0.03

PROCESS DATA

The operator was able to keep the colour of the water below 15 hazen units throughout the year. A chlorine residual of 0.5 ppm was maintained during 1967.

GRAPH OF ACTIVATED CARBON USED PER WEEK

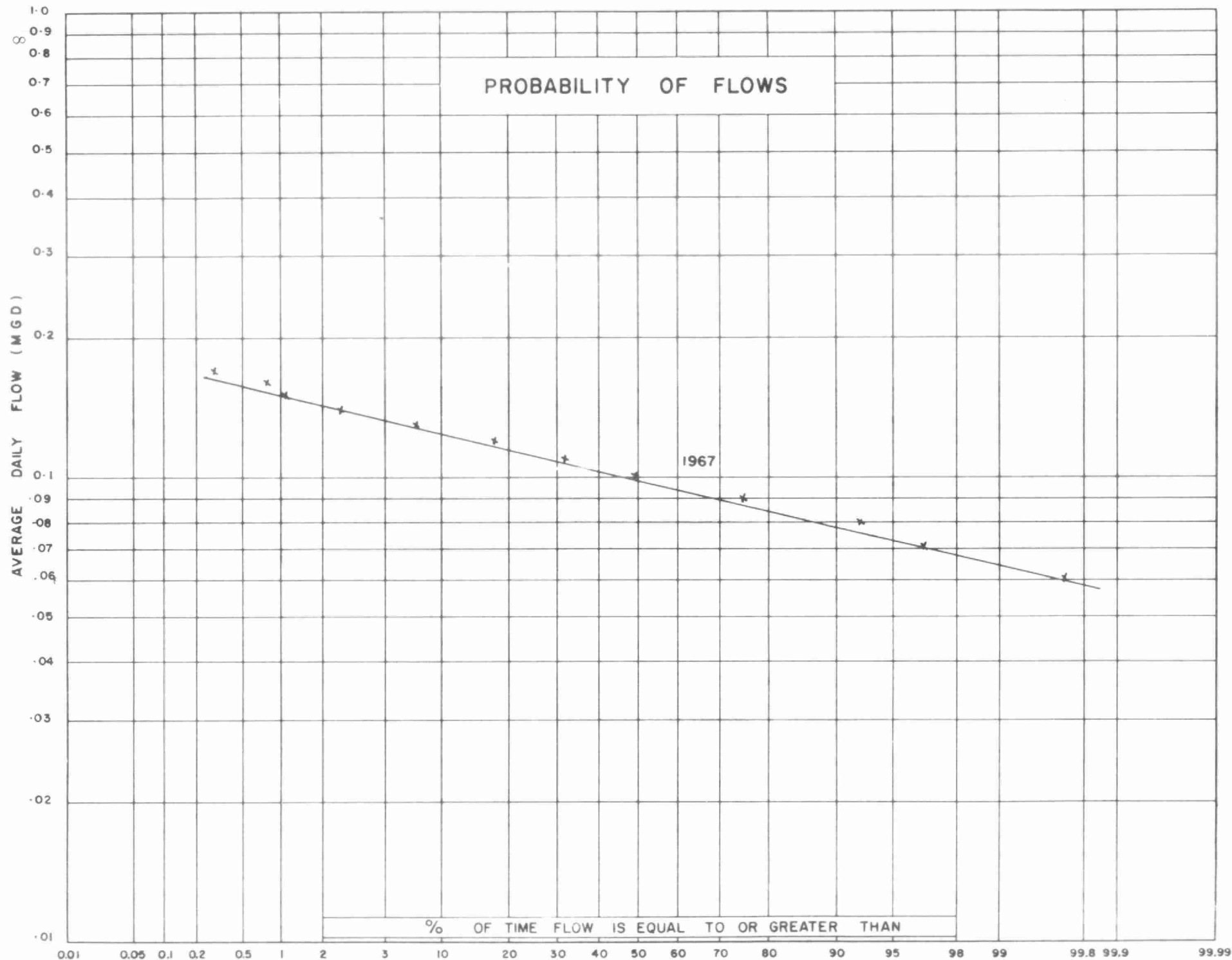
Activated carbon is used in the treatment to reduce the colour of water. Carbon treatment was required in January, March, August, October, and December of 1966.

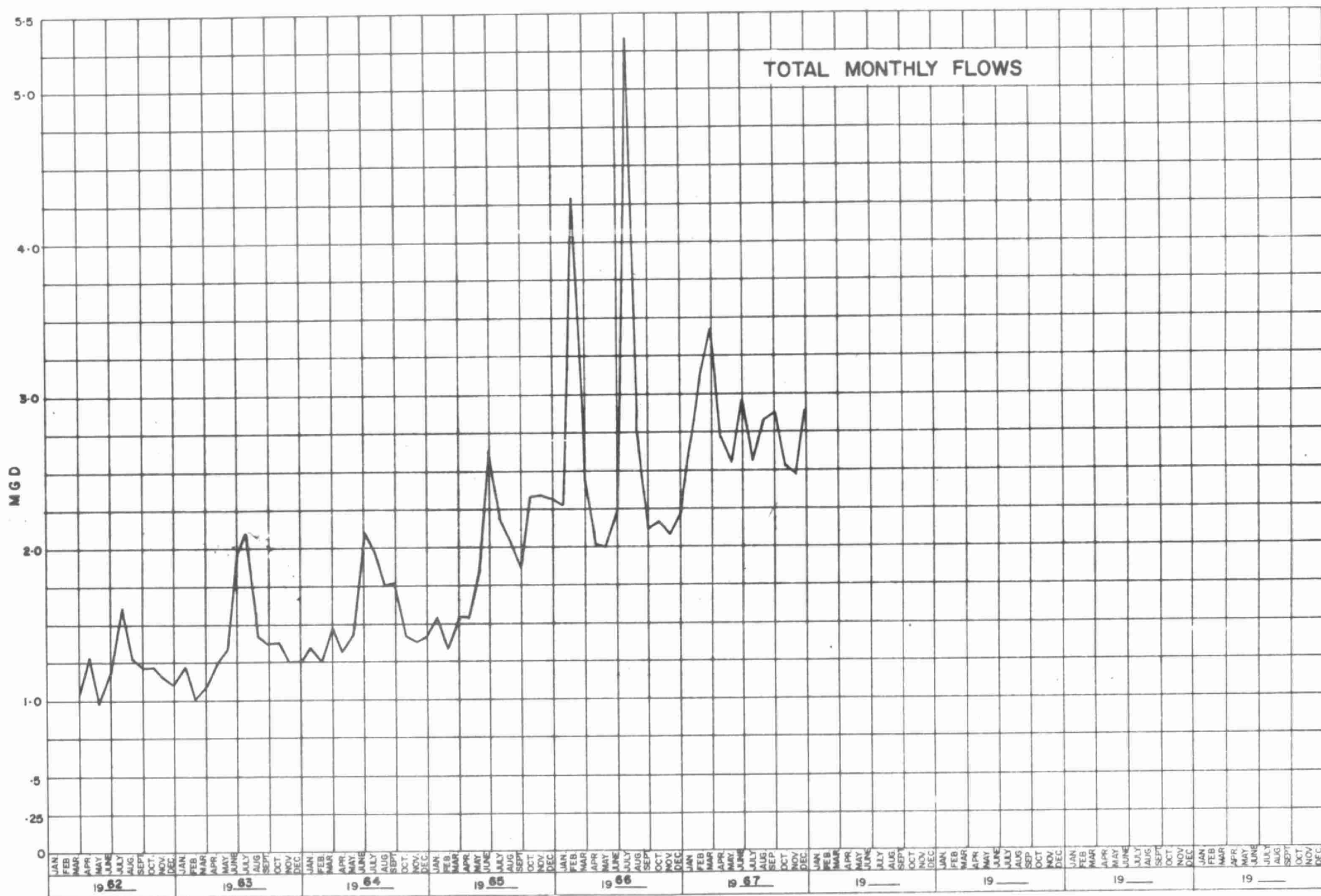
GRAPH OF AVERAGE WEEKLY COLOUR

The peak treated water colour count was 12 units and occurred in the month of June while the average colour count was approximately 9 units. The OWRC objective for colour in treated water is less than 15 hazen units, which was not exceeded during the year.

GRAPH OF POUNDS OF DIATOMACEOUS EARTH

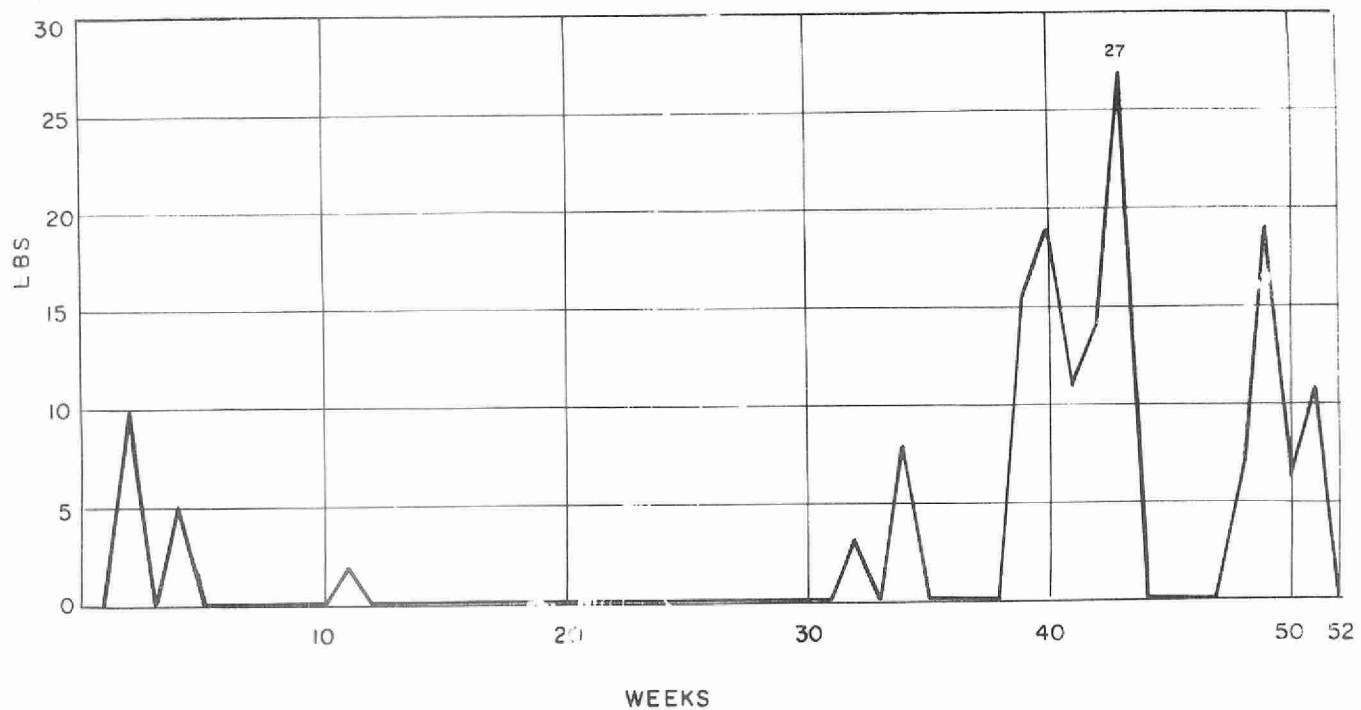
Diatomaceous earth or "Cellite", its trade name, is used in water treatment systems to remove turbidity in the raw water supply. From the graph, it can be seen that more Cellite is used during the summer months. This is because of more suspended matter and algae in the river, which requires better treatment.



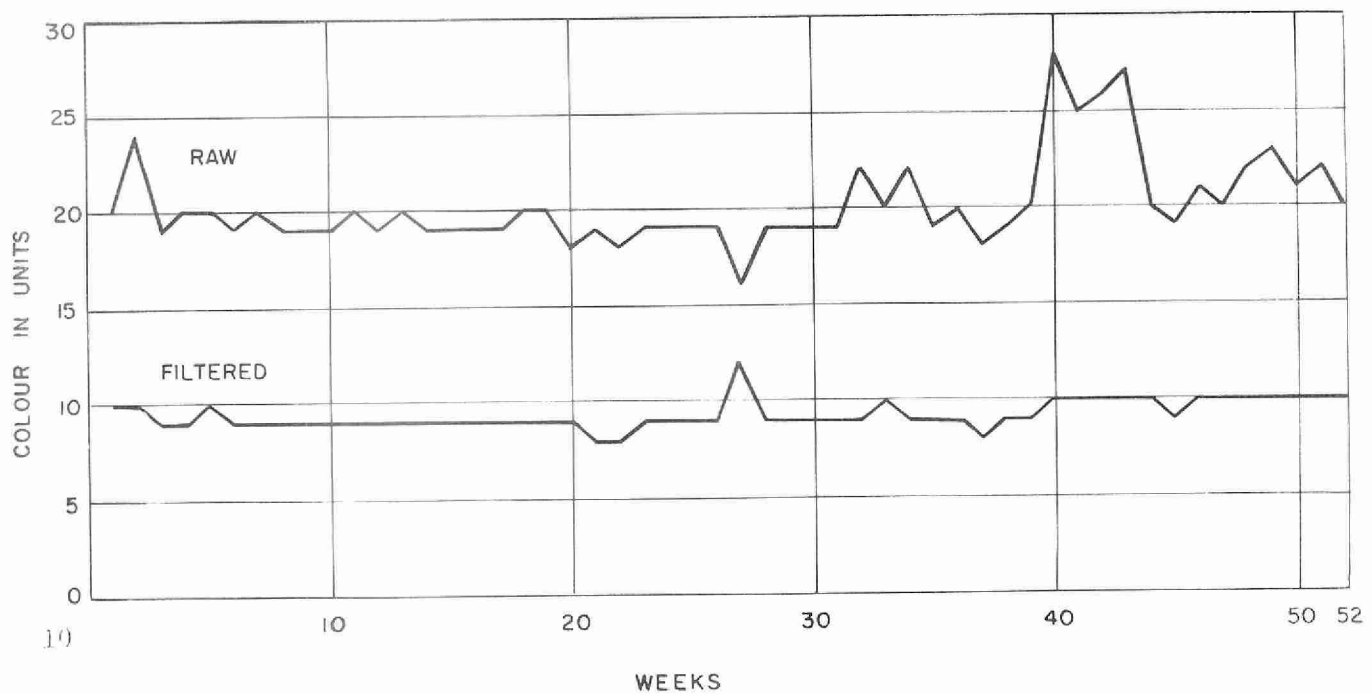


ACTIVATED CARBON

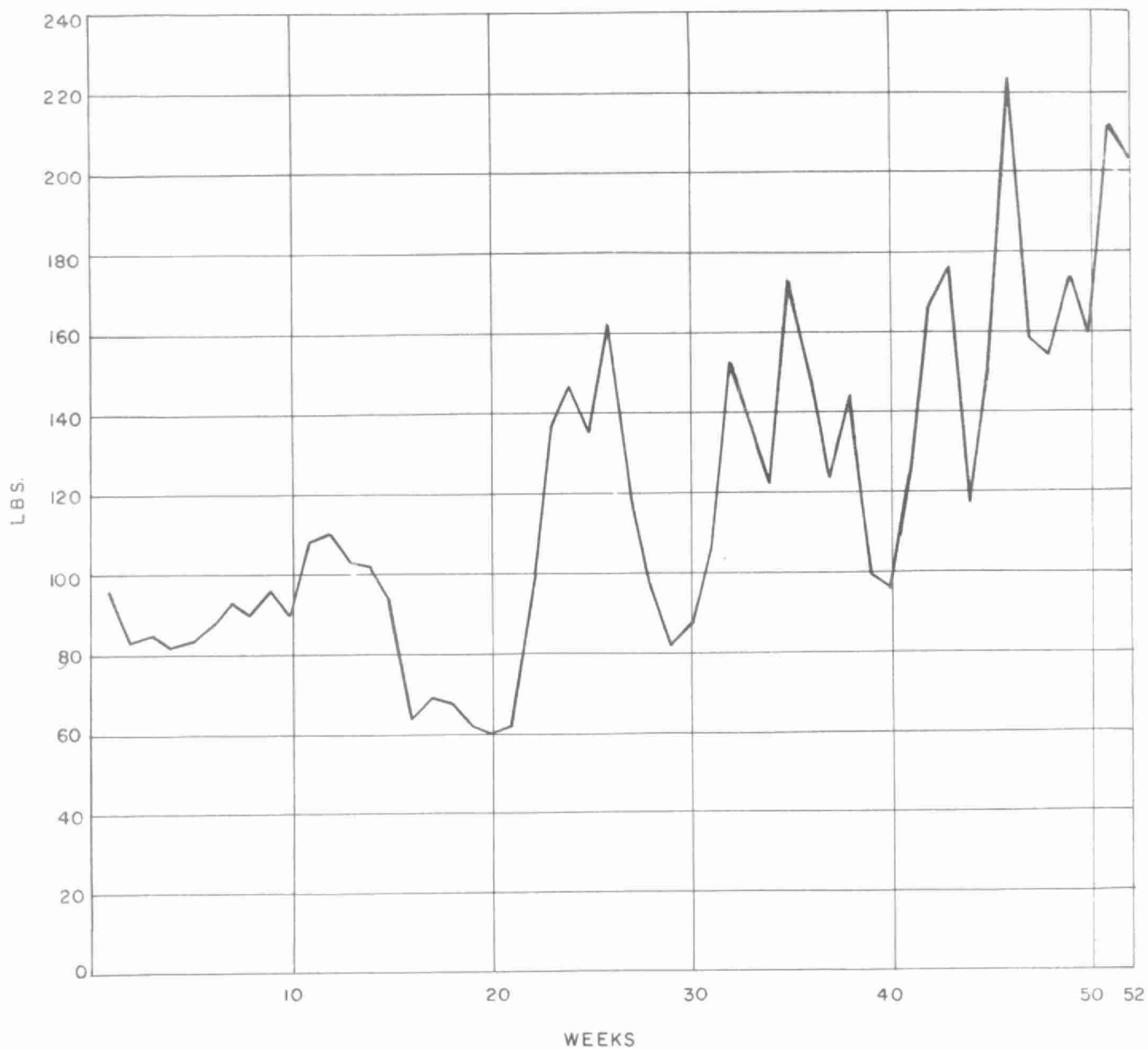
USED PER WEEK



AVERAGE WEEKLY COLOUR



LBS. DIATOMACEOUS EARTH
USED PER WEEK



CHLORINATION

MONTH	PLANT FLOW (MG)	POUNDS CHLORINE	DOSAGE RATE (PPM)
JANUARY	2.668	55.9	2.10
FEBRUARY	3.132	67.2	2.14
MARCH	3.434	79.3	2.31
APRIL	2.727	60.4	2.21
MAY	2.563	58.2	2.27
JUNE	2.972	67.4	2.27
JULY	2.572	69.4	2.70
AUGUST	2.842	79.2	2.79
SEPTEMBER	2.886	74.0	2.56
OCTOBER	2.539	64.3	2.53
NOVEMBER	2.486	59.9	2.41
DECEMBER	2.903	61.8	2.13
TOTAL	33.724	797.0	-
AVERAGE	2.810	66	2.37

COMMENTS

The total flow of 33.724 mg of treated water was pumped to the distribution system requiring 797.0 pounds of liquid chlorine to provide a dosage rate of 2.37 ppm. The highest flow of 3.434 mg occurred in the month of March. This flow represents approximately 45% of the design pumping capacity of the plant. The chlorine residual of 0.5 ppm is carried in the treated water to ensure satisfactory disinfection.

LABORATORY LIBRARY



96936000119284

Date Due



